GRITZNER LETTERING MACHINE OPERATING AND MAINTENANCE INSTRUCTIONS

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I. FOREWORD

This book describes the operation and maintenance of an entirely new item of equipment — the Gritzner Lettering Machine. Designed in Germany by the development division of Pfaff Corporation, the Gritzner now has a proven capability of applying machine lettering to drawings, lists and tables of all kinds. It produces clear, consistent lettering with a minimum of time, and can be undertaken after a short training period, thus releasing the draftsman for more productive work.

The basic model has been modified to an American Standard, with all capitals, numerals, and also the necessary engineering signs and symbols, including dimensioning arrows. Because it is not operated like a standard typewriter, but is a one or two finger operation, the keyboard arrangement has been streamlined to a simple alphabetical and numerical sequence. A total of 60 letters, numerals and symbols are quickly available. Special models with the desired symbols are obtainable on order, but the American Standard has been found to fit most engineering and architectural needs. The Gritzner is available in 3 basic letter sizes: 2mm (.079), 3mm (.118), and 3.3mm (.130).

All lettering made by the Gritzner is in a permament type ink, but can be erased when and if necessary. The block type lettering is suitable for microfilming, and diazo type prints are reproduced perfectly.

The Gritzner is extremely easy to operate, presenting no difficulties even in the hands of a trainee. A brief training period is sufficient for the full capacity of the machine to be utilized, and when handled properly, the Gritzner will save many hours of lettering time.

II. SPECIFICATIONS

A. General Description

The Gritzner Lettering Machine, constructed of precision machined aluminum and spring steel parts assembled to extremely close tolerances and enclosed in a high impact plastic housing, measures only 6.10 X 6.70 X 3.55 inches and weighs less than 2 pounds. These characteristics of precision and ruggedness combined with moderate size and light weight ensure ease of handling, precise letter control, and extended service life.

The keyboard consists of 30 keys, a shift key and a shift lock, a forward space key (similar to the space bar on a typewriter), and a carriage release key. The standard model provides 26 letters, 10 numerals, and 24 punctuation marks and characters.

The lettering machine is suitable for use on a drawing board or table, and can be used at any angle including vertical, although in the vertical position slight finger pressure may be necessary to assist the index spring drive.

The Gritzner special type inks, developed especially for this application, are suitable for all standard drafting papers, cloths, and films, and are the only inks that should be used in this machine.

The keys operate by triggering action linkage, rather than the usual positive linkage used in typewriters. This feature causes the type bar to be driven at a uniform rate, providing a uniform impression regardless of how the operator strikes the key.

B. Accessories

The accessories accompanying the lettering machine are provided to ensure that the appropriate tools are available to clean, store, and maintain the machine. Like any precision device, the Gritzner must be cleaned and properly cared for to ensure maximum performance.

III. PREPARING THE MACHINE FOR USE

A. Inking Pad

The lettering machine is received ready to operate, with ink pad filled and keys clean. Stand unit on front end and depress any key to expose the ink pad. Inspect the pad to ensure that it is moist and satisfactory for use. Depress sponge rubber pad several times, using a small blunt tool, to work the ink up to the surface. Add a few drops of ink to the surface of the pad.

B. Inserting Index Rail in Drafting Machine

Insert index rail in place of horizontal scale on drafting machine. If drafting machine is not used, place index rail against parallel bar or T-square. The lower edge of the index rail is designed for this application.

C. Mounting Machine on Index Rail

Align red mark on right side of machine housing with red mark on right end of index rail. Lower machine until it mates with the index rail. The advance mechanism spring in the spacer rack automatically couples to the lettering machine chassis by a retaining clip, allowing the machine to move freely along the index rail when the carriage release key is depressed. Press carriage release and slide machine to the left to the desired position. Release carriage release. The machine engages with the teeth on the index rail, and is now ready for operation.

IV. OPERATION

Before beginning to letter, ensure that the lettering surface is absolutely flat. Any dips or ridges in the paper adversely affect the quality of the lettering. In addition, it is desirable to have not more than one thickness of paper on the drafting table; more layers of paper tend to reduce the quality of the lettering.

It is advisable to make a few trial letters on a piece of scrap paper before beginning operation to establish that the pad is properly inked, and to determine the optimum height of the machine above the paper. A cam adjustment lever at the right front of the machine raises and lowers the machine a minute amount to correct for variations in drafting surfaces and materials. Type several letters. If the letters are too thin and light, move the lever to the right to bring the machine closer to the surface. If the letters are too thick and blurred, move the lever to the left. If moving the adjustment lever does not correct the condition, check the ink supply — it may be necessary to add some ink to the pad to cause the machine to letter properly. To remove excess ink from the pad, press down on the surface of the pad with any absorbent material, such as blotter or kleenex.

A. Alignment Indicator

A plastic alignment indicator located in the path of the keys shows the exact location of the next letter to be printed, and can be used to locate insertions in changed dimensions or legends. The front portion of the indicator (B) exactly bisects a letter horizontally, and the scribed center line (D) bisects the letter vertically, allowing the letter to be exactly located. The inset right portion of the indicator (C) indicates the bottom of the writing line. Horizontal dimensioning arrows are bisected horizontally by the front of the indicator, but print to the left or right of the scribe line, with the tip of the arrow exactly on the scribe line. Vertical dimension arrows are bisected vertically by the scribe line, but print above or below the front of the indicator, with the tip of the arrow exactly on the front.

B. Upper and Lower Shift Keys

It is necessary to shift between upper and lower case whenever numerals, punctuation marks, or symbols are required. Shifting is accomplished by the small key on the left side of the keyboard. Depress the small key with the left index finger when it is necessary to shift. The carriage can be locked in upper case by depressing the small key directly above the shift key.

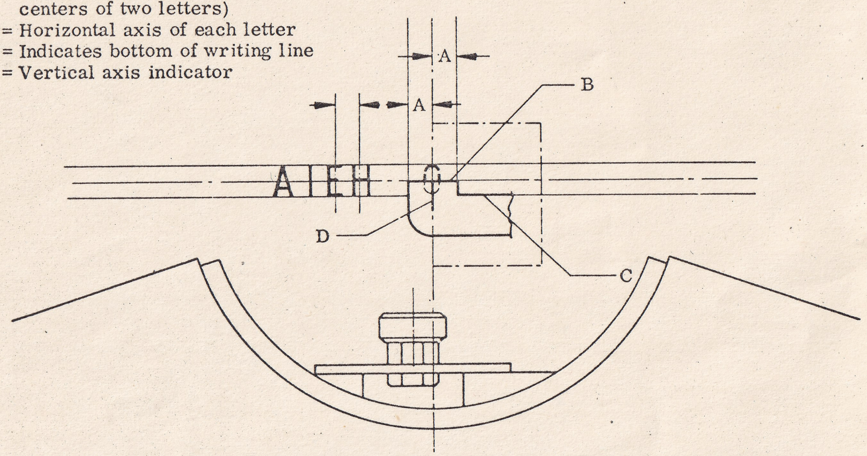
C. Hand Positions

Place the left hand on the index rail, lightly touching the left side of the Gritzner. This provides any steadying that might be necessary, and places the left index finger in a position ready for operation of the upper shift keys. Operate the keys with the right index finger. Although the keyboard looks similar to a typewriter, the machine operates somewhat differently from a typewriter. The keys operate by a triggering action, as opposed to the positive linkage used in typewriters. Do not strike the keys as in typing; rather, place the finger on the key and pull it downward, then release the key quickly, allowing it to snap back into position. This technique will result in consistent, high quality lettering and, with experience will become the most rapid, efficient method.

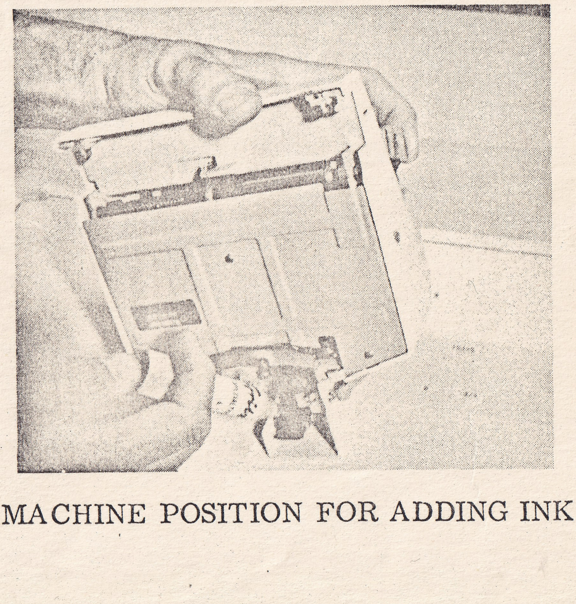
D. Erasing

Although Gritzner special type ink is permanent, it is readily erasable. However, as with any ink, some care is required. An electric eraser works well, and can be used repeatedly in the same area if care is taken. To prevent eraser dust from falling into the machine, place it above or to the side of the area to be erased. The machine letters well on erased areas, and corrections can be placed accurately by using the indicator guide.

A = Letter Margin (distance between centers of two letters)
B = Horizontal axis of each letter
C = Indicates bottom of writing line
D = Vertical axis indicator



ALIGNMENT INDICATOR



MACHINE POSITION FOR ADDING INK

E. Indexing (Horizontal and Vertical)

Horizontal indexing is provided by the index rail, which has its own spring drive. Each time a character is struck, the machine automatically moves one space along the rail. Vertical indexing is accomplished by moving the entire machine and index rail, using the drafting machine in the normal manner. To enter angled dimensions or characters, lock the drafting head at the required angle. The lettering machine can be used at any angle from horizontal to vertical.

F. Re-Inking

The ink pad will hold enough ink to letter even a large drawing. However if it is necessary to stop lettering before the job is completed, or the lettering begins to fade, it may be necessary to add a few drops of ink. Greying out of letters can also be caused by dirty letters, so if adding ink does not bring back a black image, clean the keys with the brush or cleaner provided. Always remove the machine from the index rail when adding ink or cleaning keys. After prolonged use, it may be necessary to change the ink pad. The plastic pad holder can be removed, however it is somewhat easier and cleaner to stand the machine on end and depress one of the keys to expose the pad. Remove the pad, using a pair of tweezers, leaving the pad holder in place. Place new pad in holder, being sure it is properly seated in the holder, and the nylon surface is up. Add about 14 to 16 drops of ink from the tube, after shaking it a few times to clear the opening. Apply the ink to the reservoir at the back of the pad, with only a drop or two actually on the surface. Work the pad up with a blunt tool to get the ink evenly distributed through the pad, wait a few moments for the ink to settle, and the machine is ready to operate. Keep the ink pad saturated with ink for best printing results.

V. REMOVAL, CLEANING AND STORAGE

A. Removal

Remove the lettering machine by depressing the carriage release key and sliding the machine to the extreme right of the index rail. The machine can then be lifted away from the index rail.

B. Cleaning

It is important that the Gritzner type be kept clean for best performance. When type face becomes dirty, clean with the plastic cleaner provided. Press the cleaner firmly on the face of the letters and gently lift off the old ink. DO NOT TWIST the cleaner, as possible misalignment of letters can occur. The housing, keys, and index rail can be cleaned with a soft cloth dampened in alcohol if required, to remove any ink or grime that may have accumulated.

C. Storage

When the Gritzner is not in use, always protect it with the dust cover provided, or return it to the storage case. This will prevent accumulation of dust in the operating mechanism and will ensure maximum service life.

VI. SPECIAL INK INSTRUCTIONS.

Your Gritzner Lettering Machine comes to you filled with universal type ink, which is formulated to use on both film and vellum, as well as cloth. It is very easy to handle, does not dry in the pad, and does not build up on the letters. Drying time is well within normal requirements, with excellent reproducibility, permanency and erasibility. Only an occasional cleaning of the keys is necessary, using the putty-like plastic cleaner provided. Follow inking instructions under Section IV F. Add a few drops of ink to the pad when preparing the machine for use, and then add ink as needed. Best results are obtained when the pad is well saturated with ink. PAD REPLACEMENT IS NECESSARY ONLY WHEN PAD BECOMES WORN FROM EXTENSIVE USE. USE ONLY GRITZNER INK IN THIS MACHINE. ADDITIONAL INK CAN BE ORDERED FROM YOUR NEAREST DEALER.

GRITZNER

TROUBLE SHOOTER GUIDE

PROBLEM	CAUSE	REMEDY
1. Letters do not print	No ink in pad	Add ink to pad.
	Machine not mounted on rail, or improperly mounted	Re-mount from right.
	Cam lever set too high	Lower cam adjustment.
2. Letters are grey	Pad needs ink	Add a few drops of ink.
	Letters need cleaning	Clean rubber keys with type cleaner.
3. Letters too thin in line density	Cam lever set too high	Lower cam adjustment.
Letters too thick in line density	Cam lever set too low	Raise cam adjustment.
4. Ink smears	Ink not entirely dry	Allow reasonable drying time.
5. Typed lines are uneven	Machine is moving slightly while printing	Use left hand to lightly support machine and rail.
	Jabbing at keys	PULL keys down firmly.
6. Machine will not index forward	Has reached end of rail	Press carriage release and re-index to the left.
7. Striker arm sticks	Erasures or dirt in slots	Clean segment slots with long bristle brush.
8. Upper symbol prints occasionally when upper shift key is not pressed	Letter head is still in upper register cocked position. Key was released too slowly the last time used on upper register	PULL keys down, then release smartly. Head will automatically return to lower register position.